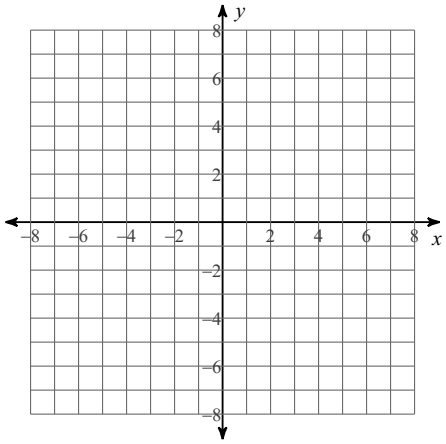
Pre Calculus Name_____ ID: 1

Final Review - Rational Functions

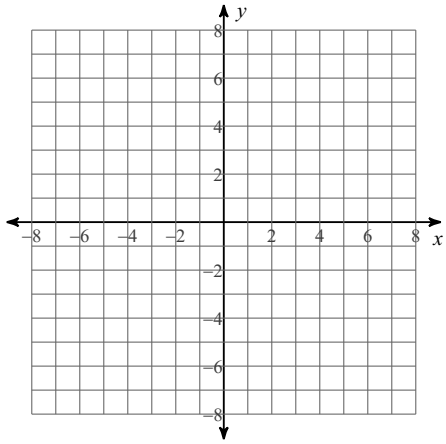
Date_____ Period____

Identify the holes, vertical asymptotes, x-intercepts, and horizontal asymptote of each. Then sketch the graph.

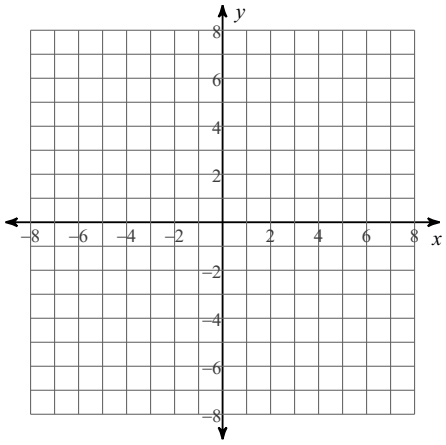
1) $f(x) = \dfrac{x^3 - x^2 - 12x}{-3x^3 - 3x^2 + 18x}$



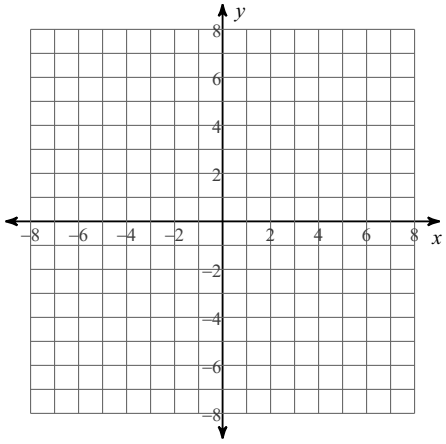
2) $f(x) = \dfrac{2x^2 + 6x - 8}{x^2 + x - 2}$



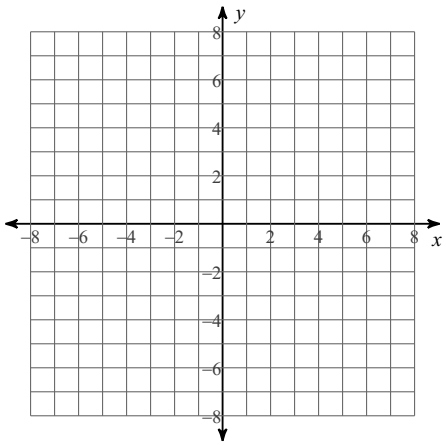
3) $f(x) = \dfrac{x^2 - x - 6}{2x - 2}$



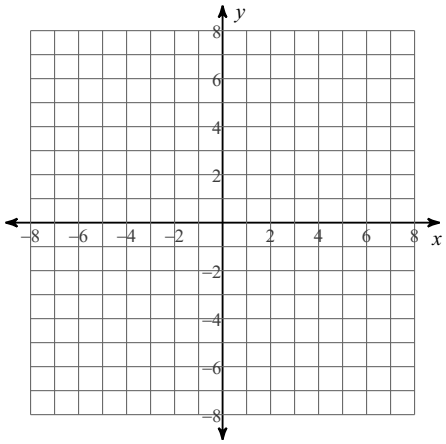
4) $f(x) = \dfrac{x^2 - 4x}{x^2 - x - 6}$



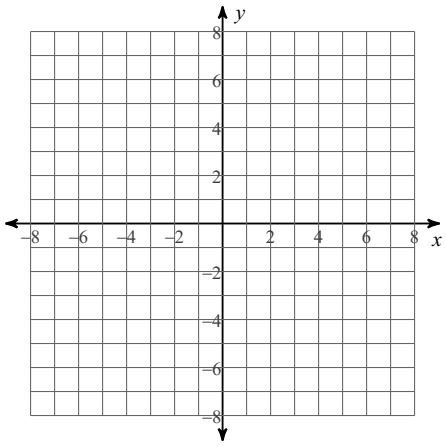
5) $f(x) = \dfrac{-4x^2 + 4x}{x^3 + x^2 - 6x}$



6) $f(x) = \dfrac{x^2 + x - 2}{-x^2 + 2x + 3}$



7) $f(x) = \dfrac{x^3 + 2x^2 - 3x}{-4x^2 + 8x + 12}$



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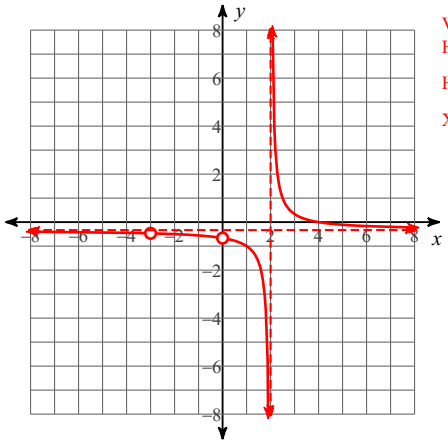
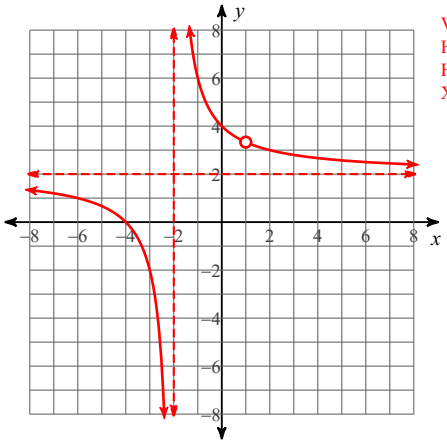
1) $f(x) = \dfrac{x^3 - x^2 - 12x}{-3x^3 - 3x^2 + 18x}$



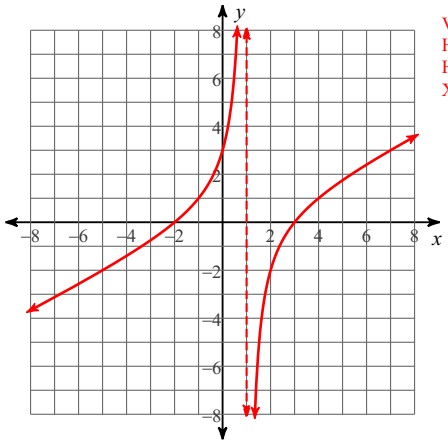
Vertical Asym.: $x = 2$
Holes: $x = 0$, $x = -3$
Horz. Asym.: $y = -\frac{1}{3}$
X-intercepts: 4

2) $f(x) = \dfrac{2x^2 + 6x - 8}{x^2 + x - 2}$



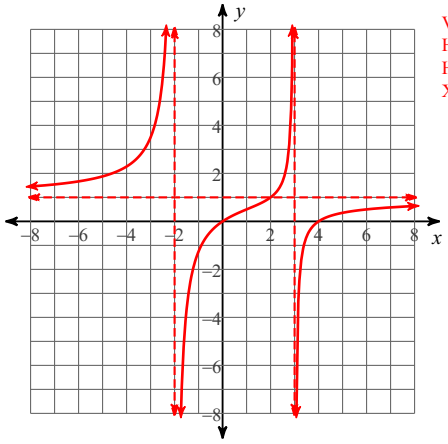
Vertical Asym.: $x = -2$
Holes: $x = 1$
Horz. Asym.: $y = 2$
X-intercepts: -4

3) $f(x) = \dfrac{x^2 - x - 6}{2x - 2}$



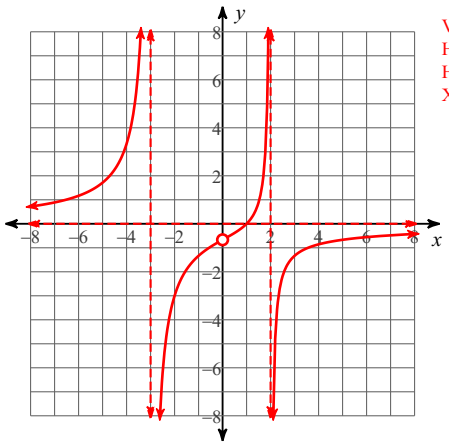
Vertical Asym.: $x = 1$
Holes: None
Horz. Asym.: None
X-intercepts: 3, -2

4) $f(x) = \dfrac{x^2 - 4x}{x^2 - x - 6}$



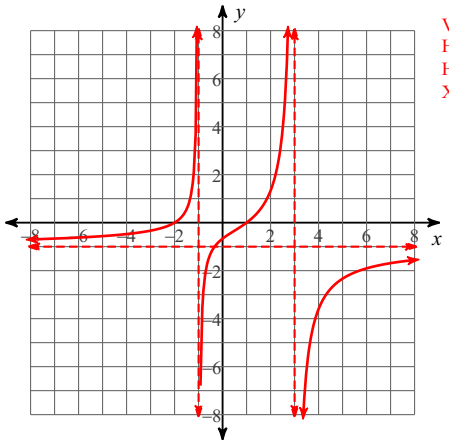
Vertical Asym.: $x = 3$, $x = -2$
Holes: None
Horz. Asym.: $y = 1$
X-intercepts: 0, 4

5) $f(x) = \dfrac{-4x^2 + 4x}{x^3 + x^2 - 6x}$



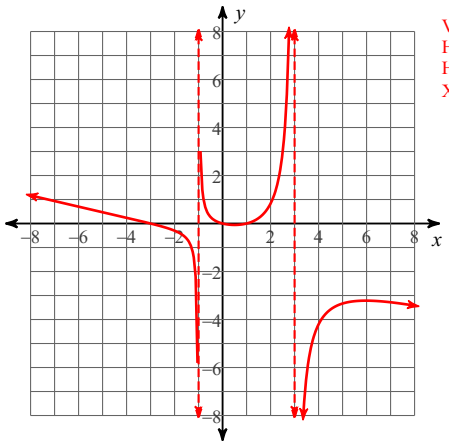
Vertical Asym.: $x = 2$, $x = -3$
Holes: $x = 0$
Horz. Asym.: $y = 0$
X-intercepts: 1

6) $f(x) = \dfrac{x^2 + x - 2}{-x^2 + 2x + 3}$



Vertical Asym.: $x = 3$, $x = -1$
Holes: None
Horz. Asym.: $y = -1$
X-intercepts: 1, -2

7) $f(x) = \dfrac{x^3 + 2x^2 - 3x}{-4x^2 + 8x + 12}$



Vertical Asym.: $x = 3$, $x = -1$
Holes: None
Horz. Asym.: None
X-intercepts: 0, 1, -3